Washington State Liquor Control Board

Summary of Warehouse Management System (WMS) Operation

This section describes CDC's recommended process flow for the WSLCB Distribution Center running the Catalyst Warehouse Management System Release 10.2 Suite.

Inbound Processes

1. Pre-Receiving
   A. Purchase Orders (POs) and Stock Replenishment orders (SRs) are downloaded from the host.
      1) POs and SRs can have one to many lines.
      2) Some are open orders that will arrive in multiple shipments.
   B. Vendors will send ASNs either electronically or via fax.
      1) The ASN includes PO, item and quantity information.
      2) ASNs currently have an accuracy rate of about 70%.
   C. Upon receipt of the ASN, the Receiving scheduler creates an appointment in Appointment Scheduling.
   D. The receiving scheduler then creates an inbound shipment and writes it on the ASN which is emailed or faxed back to the supplier.

      Inbound Shipments
      An inbound shipment is a collection of advanced shipment notices (ASNs) that are scheduled to be delivered to the warehouse at the same time. In most cases, the ASNs will be from one vendor; but if your vendors use freight consolidators, an inbound shipment may include ASNs from multiple vendors.
      Inbound shipments consist of four records:

      a) Inbound Shipment Header

         The inbound shipment header contains information about a specific shipment as a whole. It includes, among other information, the shipment number, the carrier code, the trailer number, the scheduled date, the receipt date, and the close date. It also determines the method by which the shipment can be closed. Each shipment has only one header.

      b) Inbound Shipment Vendor Bill of Lading

         The Bill of Lading contains information about the material on the shipment and the vendor that shipped the material. It includes, among other information, the shipment number, the vendor number, the Bill of Lading number, and the total number of pieces (pallets and cartons). Each vendor may have more than one Bill of Lading per shipment, and each shipment may have bills of lading from more than one vendor.

      c) Inbound Shipment ASN

The inbound shipment ASN identifies the ASN records that are associated with the shipment's bills of lading. It includes the shipment number, the vendor number, the Bill of Lading number, and the ASN number. Each Bill of Lading may be associated with more than one ASN.

d) Inbound Shipment Seal

The inbound shipment seal identifies a seal number on the trailer carrying the shipment. Each shipment may have more than one seal number.
You can manually create inbound shipments using the Inbound Shipments function. The shipment information may come from such sources as the Bill of Lading, packing list, or manifest.
When you add a shipment, you enter information about the shipment as a whole, such as carrier, trailer number, invoice amount, recommended vehicle for unloading the trailer, and the scheduled date. The WMS automatically sets the shipment number and status.

E. Most WSLCB inventory is received on consignment; WSLCB does not own it until it is shipped.

2. Receiving

A. When the trailer arrives, the contents are off-loaded and inspected, and the quantities are verified against the manifest.

1) If there is an obvious problem at the tail of the load, WSLCB will refuse it.

2) Most loads arrive on slipsheets, and the forklift driver loads the product on pallets.

B. WSLCB performs the RF Receive with Order function to receive the product.

1) The inbound order number display is suppressed after the first receipt against an inbound order.

2) F8 is used to identify damage during receiving.

C. Re-receipt: WSLCB uses the RF receive without order function with the re-stock flag set to Y to re-receive found inventory that had previously been adjusted out.

D. Most POs and SRs are closed by the host; some are closed manually.

3. Location Search

A. Receiving Points

1) Most receipts used the normal (N) receiving point.

2) Over-receipts: Receiving point OR is used for over-receipts.

a) These receipts go Problem Resolution, where they are held until another PO can be found or created against which to receive the product.

b) Once another PO is found, the product is un-received under its original PO, and received under the additional PO and normal receiving point.

3) Store returns: Receiving point RW is used for returns.

a) The product is routed to an inspection area and inspected.

b) These receipts are typically small quantities, and WSLCB would like to avoid storing these receipts in VNA.

(a) The storage strategy details for receiving point RW search for locations in the non-VNA areas.

(b) In the event that the WMS chooses a location in the deck lanes, carousel or split case area, the license will be taken to depalletizing for re-induction.

4) One-Time-Only (OTO): WSLCB typically receives OTO product for holidays.

a) The product is received once and shipped over a short period of time.

b) WSLCB bypasses the storage process for this product.

(i) This is accomplished by using a floor location in a new location class, near the shipping dock.

(ii) The storage strategy details with the OTO receiving point are configured to search the floor storage location class.

(iii) Pick strategy details for OTO items are configured to pick from the location class that contains the floor location.

5) Small quantity (SQ): WSLCB is able to receive small quantities of items to the carousel, deck lane, split case or pick module areas, bypassing VNA.

4. Storage

A. WSLCB's primary storage device is pallet rack configured in a very narrow aisle (VNA) configuration and served by wire-guided turret trucks.

1) The VNA is in two areas: the majority is in the main building and is referred to as east VNA; the remainder is in a new area of the building and is referred to as west VNA.

2) Each east VNA aisle is divided into two location classes: One class is designed for fast moving items and the other for medium moving items.

a) Receipt spreading is used to spread the pallets of each SKU across the VNA zones. Receipt spreading tracks the location class used to store the last receipt of an item, and stores the next receipt in the next location class in the sequence.

b) Each product has a configurable limit to the number of pallets than can be stored in each location class in east VNA.

(i) If any item exceeds this limit, it will overflow to the west VNA.

c) Use the west VNA is as primary reserve storage for the slow-moving items in the pick module and for ultra-slow products requiring less than one replenishment per week.

B. There is a pick module that has pallet-flow locations dedicated to slow-moving items. When this product is received, it is stored to the pick module first, and excess quantities are stored in the west VNA.

C. Special-order product is stored in a small license and lot-controlled room.

D. The 78 fastest-moving items are dedicated to one or more deck lane forward picking locations. One deck lane is held in reserve.

5. Putaway

A. WSLCB uses RF putaway to store each pallet in its assigned location.

Intra-Warehouse & Inventory Control Processes

1. Work Queue Report

A. WSLCB uses an alert that will post the work queue status to RF terminals

2. Issues

A. WSLCB uses the RF Issue function to remove broken bottles from inventory and discard them.

3. Narrow Aisle Interlock

A. WSLCB has a modification to prevent two turret trucks from being in the same aisle for safe operation.

4. Box Lost

A. If WCS cannot find a case that is expected, or if it finds an unexpected case, it sends a “Box Lost” message to WMS. WMS will perform inventory adjustments if its records show the case is in a carousel or deck lane location.

5. UPC Scan

A. WSLCB has a function for users to scan a UPC code, and receive item information on an RF terminal.

Outbound Processes

1. Order Processing

A. Each store receives one regular order per week.

B. There are approximately 330 stores, so the DC ships to 66 stores per day on average. 10 new stores are planned in the 2011-13 biennium.

C. Some stores are large enough to ship pallet quantities of single SKUs, comingled with their regular shipment or as a separate order on a different shipping day.

D. The host sends pre-orders to the store managers for review.

E. After approval, the host sends the orders to the WMS 2 days prior to shipment.

F. The WMS creates a proposed route report that is emailed to the carriers.

G. The carriers determine routes and stops for each trailer.

1) From this input, a shipping schedule is built.

H. The outbound orders are updated with the route and stop determined by the carrier.

I. WSLCB manually enters “force-out” orders to ship sellable product that is on damage hold.

2. Wave Planning

A. CDC recommends running one wave per day consisting of all orders for the day to consolidate replenishments.

1) The wave planning process generates all necessary replenishments and picks to fulfill all the orders.

2) WSLCB uses Work Management to ensure that all replenishment and pick work assignments are placed on hold.

B. Pick generation

1) WSLCB has defined a zone group that consists of all VNA zones (old and new).

a) Full-pallet pick strategy details and replenishment pick strategy details are set up to look across the zone group and pick by FIFO.

b) The WMS will allow creation of full pallet picks from VNA before creating case picks from the carousel or deck lanes.

c) Since the product is stored with receipt spreading, this setup respects FIFO across all reserve and generally spread the picks and replenishments across the zones.

2) Carton pick strategy details are configured to search in the carousel or deck lane areas for conveyable items, and in manual pick for non-conveyable items.

a) The picks generated for the carousel area have a generic pick location, which is replaced when the carrier is in position for loading.

3) Less than carton pick strategy details are configured to search in the split case area.

C. Replenishment generation

1) Replenishment pick strategies are configured to consume partial pallets from VNA first, then to pick full pallets.

2) Replenishment pick generation rounds up quantity in order to empty each source location in VNA, but to allow actual case quantity to be replenished from the pick module.

3) Replenishment tasks from VNA to the depalletizing area are sorted by age, then priority.

4) The split case, carousel, deck lane and pick module areas are configured for allocation-driven replenishment. This results in all replenishments being visible when a wave has been completed.

a) The carousel area is configured to replenish to wave.

(i) WMS will calculate the quantity to replenish as the net number of cases (total cases needed – available cases already in carousel) needed to fulfill the wave's demand.

(ii) There will be no cases left over in the carousel after picking is complete (except for cases removed from the pallet due to rounding or remainder settings.).

b) The split case, deck lane and pick module areas are configured to replenish to capacity.

(i) WMS will calculate the quantity to replenish as the net number of cases needed to fulfill the wave's demand plus the number of cases needed to fill the lane.

c) Deck lane items can have replenishments scheduled to both deck lanes and split case from the same pallet, while carousel items can have replenishments scheduled to both carousel and split case in the same wave.

3. Replenishment Picking

A. WCS monitors the departure of pallets from the depalletizing stations.

B. WMS will analyze the queue to determine whether or not to release a replenishment task.

a) The WMS will have a field to indicate the maximum number of active replenishments to the depalletizing area.

(i) "Active" refers to tasks available to be picked, in picking, or in transit to the depalletizing area.

(ii) Replenishment tasks not destined for the depalletizing area, such as replenishments from the pick module to the carousel or from VNA to the pick module, are not included in this calculation.

b) If the number of active replenishment tasks is greater than or equal to the maximum number, WMS will not release a replenishment task.

c) If the number of active replenishment tasks is less than the maximum, WMS will release the next replenishment task in the list.

C. Turret truck drivers pull pallets from VNA and stage them in the P&D stations at the end of aisles.

1) Other drivers destage the pallets and deliver them to the depalletizing area.

D. Pick module warehouse operators pick cases manually from the designated location and place them on a conveyor. These cases bypass the depalletizing area and are transported directly to the carousels.

4. Depalletizing

A. The RF depalletizing function performs a logical transfer from the pallet license to a case license. The cases are then routed by WCS to the carousel, deck lane or split case area.

B. If any cases remain after depalletizing, they are automatically re-stored to the VNA.

5. Picking Execution

A. Non-MHE picking occurs the day before an order is to be shipped.

1) Less-than-case quantities of items are progressively picked from the split case carton-flow racks and packed in split case cartons.

2) Full pallet picks of a single SKU are picked from VNA and staged.

3) When a split case is completed, WCS will route the case to the carousel, which acts as a transfer staging location for split case cartons only. Alternatively, containers may ship staged to the shipping area and manually moved.

B. Pick Release

1) When the DC is ready to pick a route (trailer), the picks for the route will be released by the Expeditor at the shipping door.

2) When a route is released, the full pallet and non-conveyable picks will be available to ship stage. WMS will also send pick instructions to WCS.

a) Pick release will re-run pick search for the carousels to determine actual pick location.

3) WCS controls the release of picks from the deck lanes and the carousel to ensure reverse-stop loading.

a) Full cartons are automatically picked from the carousel and deck lanes.

b) WCS then routes the cases to the shipping sorter.

c) If any pick request from the carousel or deck lanes cannot be fulfilled, WCS will send a “Pick Abort” message to WMS.

(i) WMS will process any “Pick Abort” messages as shortages to the order.

4) Interleaving is configured to be straight (versus revolving), so that priority will determine which type of task is assigned to the turret truck driver.

C. The WSLCB modification to cancel replenishments will allow cancellation by date or wave.

6. Loading & Shipping
   A. As each case passes under a scanner on the shipping decline conveyor, WMS ship-stages it.
   B. Since WSLCB does not RF load, the case is considered loaded at this point.
   C. WSLCB performs shipment close on the route, and subsequently performs order close on the orders in the route.
   D. Carriers load their own trailers using an extendable conveyor in five high stacks with deck lane SKUs stacked together and are responsible for securing the load.

System Integration

Host Interface / WMS Interface

- Download
  - Customer (100) transformed to SyncParties
  - Item (050, 051, 080) transformed to SyncItemMaster
  - Carrier (200) transformed to SyncParties
  - Inbound Order (400, 425) transformed to SyncShipmentSchedule
  - Outbound Order (450, 475, 500) transformed to SyncPickList
- Upload
  - ProcessInventoryReceipt transformed to Actual Receipt (900)
  - UpdateInventoryBalance transformed to Inventory Adjustment (930)
  - SyncInventoryBalance transformed to Summary Inventory (800)
  - Confirm Inventory Issued transformed to Issue (920)
  - SyncShipment transformed to Outbound Shipment (920)
  - UpdatePicklist transformed to Outbound Order Close (999)

WMS / WCS Interface

WMS to WCS Transactions

Messages	ID	Description
Depalletizer case scanned	002	This message is sent to give WCS information about cases being placed on the conveyor at the depalletizer stations. WCS uses this information to sort inbound cases into proper storage locations.
Split case scanned	003	This message is sent to give WCS information about cases being placed on the conveyor in the split case area. WCS uses this information as indication that the case requires storage in a carousel location.
Start of picks	004	This message is sent as an indication to WCS that Catalyst is going to send picks for a trailer. Carousel pick messages and deck pick messages (see the next two entries) are ignored if they apply to a trailer for which a start of picks message has not been received.
Carousel pick	005	This message is sent to give WCS a pick requirement for a case located in the carousel. WCS must not acknowledge this message until after it receives the start of picks message for the trailer to which the pick corresponds.
Deck pick	006	This message is sent to give WCS a pick requirement for a certain number of a

		particular item in a particular deck lane. WCS must not acknowledge this message until after it receives the start of picks message for the trailer to which the pick corresponds.
End of picks	007	This message is sent after all of the carousel pick and deck pick messages are sent for the given trailer. It tells WCS there will not be anymore pick commands sent for the given trailer. WCS cannot release picks for stops on the trailer until receipt of this transaction. Carousel pick messages and deck pick messages are ignored if they apply to a trailer for which an end of picks message has already been received.

WCS to WMS Transactions

Messages	ID	Description
Store complete	108	This message is sent to tell WMS that a case has been stored in either a deck lane or a carousel location. Once a case has been stored, it is available to be picked.
Pick complete	109	This message is sent to tell WMS when a case has been picked (retrieved) from a deck lane or a carousel location.
Pick abort	111	This message is sent to tell WMS when an individual pick cannot be completed. The abort reason indicates why the pick was aborted. WCS sends pick abort messages under two conditions. 1) When an operator manually completes a stop or a trailer, WCS sends pick abort messages for the cases required for the stop or the trailer that have not yet been successfully processed at a door scanner. 2) If WMS issues a pick for a carousel location that is actually empty, then WCS sends Catalyst a pick abort message for the case. Pick abort messages for carousel picks identify the specific case that was not picked. Pick abort messages for deck lane picks identify the item that was not picked. For deck lane picks, an identical message is sent for each case being aborted.
Case lost	113	This message is sent to WMS when one of the following four conditions has occurred: 1) WCS has deleted a case from a queue because the case has been in the queue for longer than the WCS-configurable time value associated with the queue 2) A case has been removed from a deck lane or a carousel location by a purge of a deck lane or a carousel stack level 3) A case has been removed from a carousel location by a carousel location clear 4) WCS has scanned an unexpected case at one of the scanners – the case may or may not be resident in WCS WCS may send a case lost message more than once for the same case.
Case at door	116	This message is sent to WMS when an expected case is scanned by the scanner at DOOR1, DOOR2, DOOR3, DOOR4, DOOR5, or DOOR6. Case at door message data includes the shipping sorter lane. If a trailer is suspended from one door and then unsuspended at another, all communications with WCS reference the original door.
Carousel service state	118	This message is sent to inform WMS whenever a service state related to a carousel stack level changes.
Deck service state	119	This message is to inform WMS whenever the service state of a deck lane location changes.

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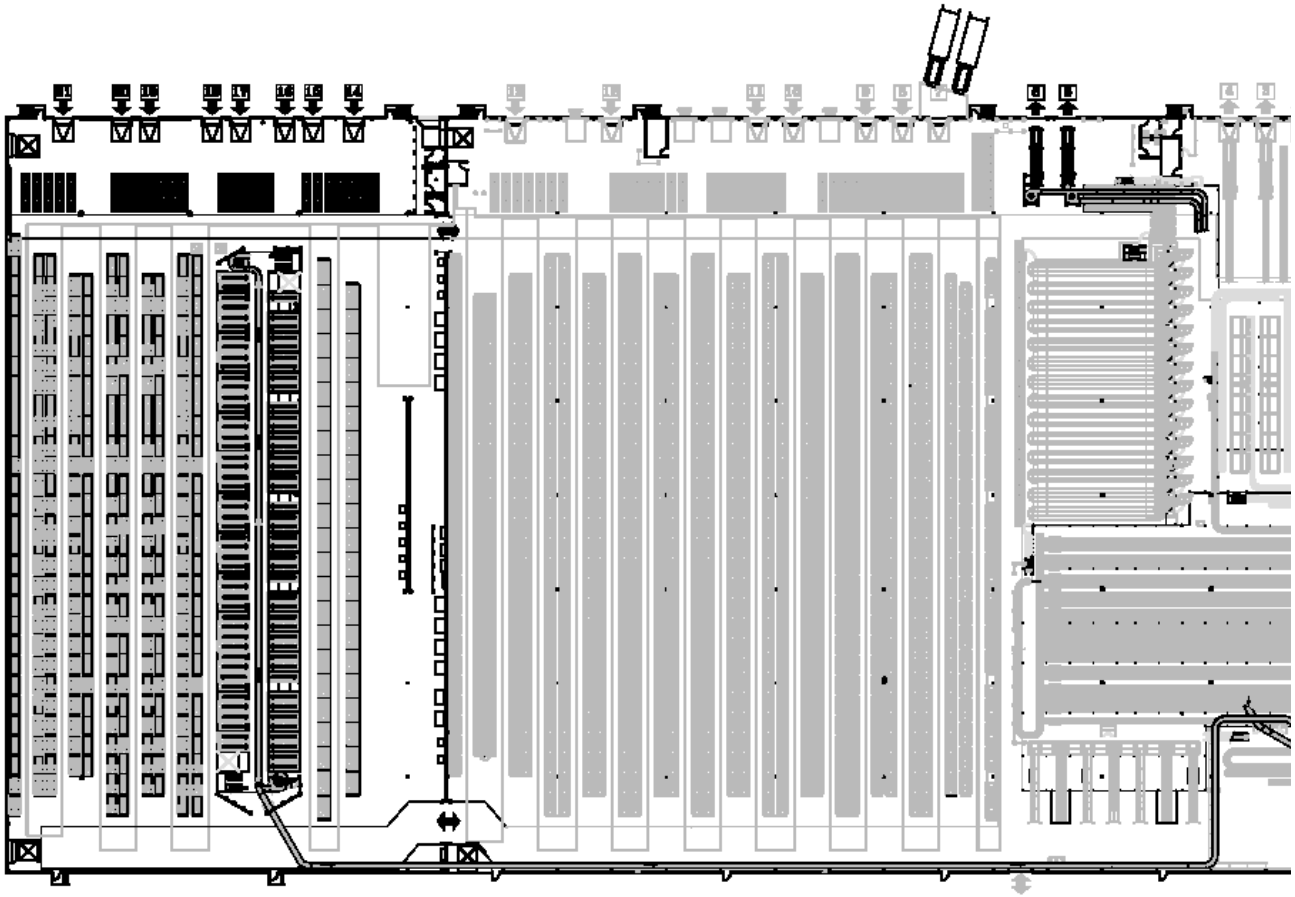

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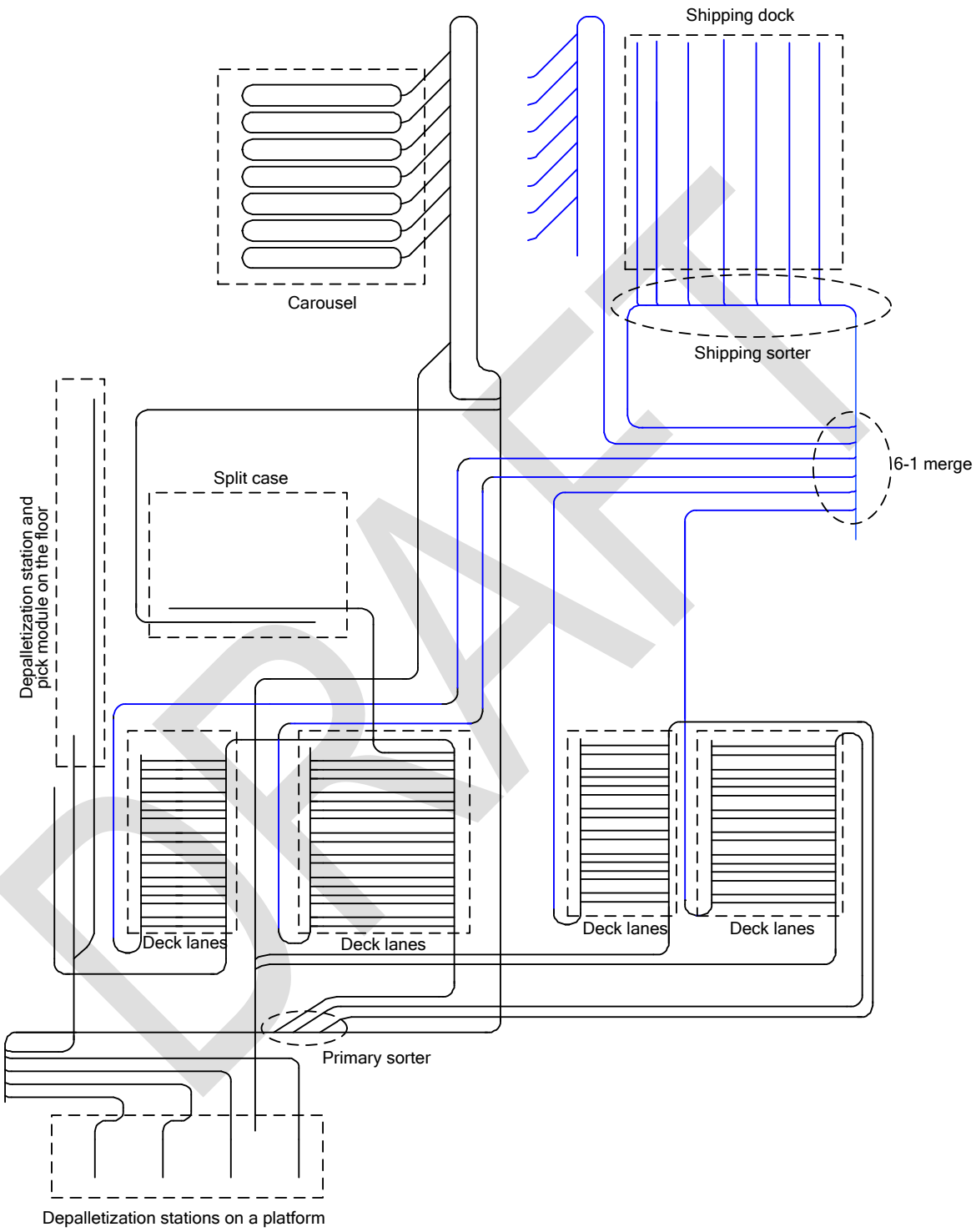
The layout of the conveyors and carousels operated by the Warehouse Control System (WCS) is shown schematically in the diagram below.



Note: The dashed lines in the above diagram are used to group logical areas. They do not necessarily correspond to physical entities.

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Summary of Warehouse Control System (WCS) Operation

Unitized pallets of cases are stored in very narrow aisle (VNA) pallet rack (not shown). Cases are introduced into the conveyor system for fulfillment of specific shipment requirements at depalletizer (depal) stations. The fulfillment process consists of inducting cases into the system for storage in temporary forward picking locations, and then sequentially releasing cases for loading onto outbound trailers. There is no direct path through the conveyor system from inbound induction to outbound shipping.

In the diagram above, inbound conveyors are shown in black; outbound conveyors are shown in blue.

Cases are inducted into the system at any of five depalletizer stations and from a pick module. The cases are transported to a primary sorter where they are routed to storage areas – four sets of deck lane accumulation conveyors, a cluster of fourteen carousel stacks, and a split case picking area.

An intermediate process occurs at the split case picking area. Inbound cases are stored in case flow rack. As part of the picking operation, units (bottles or inner packs) are picked from inbound cases and packed into split case containers (corrugated boxes containing multiple items). The split case containers may be transported to the carousels where they are temporarily stored or staged directly to the shipping area. For the purposes of this document, split case containers are generally treated and referred to as cases once they leave the split case area.

When instructed by the WMS, WCS controls the release of cases from the various forward picking areas for shipment. The cases are transported to a six-lane-to-one-lane merge (6-1 merge). Cases pass on to a shipping sorter which diverts them to six shipping doors for direct loading onto trailers. The release of cases from the forward picking areas for loading is carefully controlled to assure that cases for different stops within a trailer load are not intermixed on the shipping spur.

Exception cases (e.g. no-reads, cases in the wrong place, etc.) are sent to one of three hand lines located throughout the system.

Roughly 60% of case volume is picked from the carousels; 40% is dispensed from the deck lanes. Carousel volume may include split case containers. Carousel pick requests are processed one case at a time. Deck lane pick requests are processed as slugs of identical cases. Individual stops may contain less than 50 cases or more than 1,800 cases. Total daily case requirements are typically between 18,000 - 24,000 cases. Carousel picking is the limiting factor to overall system performance.

Glossary of Terms

- **Aisle** – In an inventory facility, an aisle is the space between storage devices that is used by material handlers for access. In the WMS, aisle forms part of the location number.
- **Allocation** – The process of searching for and reserving inventory from specific storage locations to satisfy outbound orders and issues without orders.
- **Allocation Wave** – A group of outbound orders selected for allocation together based on user-defined selection criteria.
- **Alternate Item ID** – A secondary method for identifying an item. Alternate Item IDs could include UPC codes or manufacturers' part numbers. Used during receiving, cycle counting, and order separation. Several inventory-related screens allow query by Alternate Item ID as well as item number.
- **Alternate Master Strategy** – A strategy that overrides an item's regular master strategy. It allows you to pick and replenish material based on combinations of item, outbound order type, and/or customer. Created by linking an alternate strategy to a pre-defined master strategy, which includes storage, picking, and replenishment strategies. See also master strategy, pick strategy, and replenishment strategy.
- **Area** – A major subdivision of an inventory facility, usually consisting of numerous aisles. In the WMS, area forms part of the location number.
- **ASN** – Advance Shipment Notice is a set of information sent from a supplier to inform the warehouse about material to partially or completely fulfill one or more inbound orders. The ODS and Supplier Quality accepts 3 ASN Pack Structures. This electronic document is either sent by a host system or Supplier Link. At a minimum, the ASN identifies the material that was shipped, the orders the material fulfills, and the supplier that shipped the material.
- **ASN Audit** – An inspection of goods by WMS user to verify the accuracy of the quantity reported in the ASN. In addition the WMS user can report non-conformant events.
- **ASN Audit Frequency** – Indicates how often ASNs will be selected for audit. For example, if the frequency is set to 5, every fifth eligible ASN will be scheduled for audit. If the value is set to 1, every ASN will be audited.
- **ASN Audit Label** – A label (pack structure license number) from an ASN that is currently scheduled for audit.
- **ASN Pack Structures** – May, optionally, include information about the container and master containers into which material has been packed. A field within the ASN, Pack Structures that describes what information the ASN will include and the structure in which the information will be presented: Pick and Pack (Type 1), Standard Case Pack (Type 2), and No Pack Level Information (Type 4). Supplier Link cannot schedule audits for ASNs using the No Pack Level Information structure.
- **Audit Scheduling** – Supplier Quality provides for ASN audit scheduling to be automatically done at the supplier level based on parameters set by the organization. In addition, users can target specific suppliers, supplier groups, supplier types, items or purchase orders that are scheduled based on user defined criteria within a rule.
- **Backorder** – A shorted outbound order. If there is insufficient available quantity to fill an outbound order, the WMS fills as much of the order as possible and closes the order. The WMS assumes that the order originator will handle backorders.
- **Batch Picking** - The process of picking partial-pallets of items for more than one order or consolidated orders at the same time while maintaining order separation by using one container per order. Compare to bulk picking and order picking.
- **Bulk Picking** – The process of picking multiple items for more than one order at the same time into a single container and then separating the items by order at an order separation location after picking. It is an option that can be disabled during the wave planning process. Compare to batch picking and order picking. See also order separation location and wave planning.

- **Carrier** – Identifies parties that transport material to and from a warehouse or other locations in the supply chain. Although they typically include third-party companies such as UPS, Fed-Ex and Consolidate Freightways, they can also include internal divisions.
- **Carton Label** – A label used to identify cartons for shipping.
- **Cascading Replenishment** – The process whereby picking material from a source location to replenish a target location triggers the replenishment of the source location. For example, replenishing a piece picking location from a carton location may result in replenishing the carton location from a pallet location. See also circular replenishment and replenishment.
- **Catch Weight** – The actual weight of goods on a single license or container. The Catch Weight feature allows you to accurately track the actual weight of a license/container as it moves through the warehouse. You can capture and maintain the weight of a license/container at the each, carton, or pallet level.
- **Child Container** – A container that is assigned to one or more parent containers or pallets.
- **Circular Replenishment** – Also known as a recursive path, it is a form of cascading replenishment in which a target location in a cascade is also a source location. In essence, this causes the target location to be its own source location. The Master Strategy Validation report identifies recursive paths so you can correct them. See also cascading replenishment and replenishment.
- **Closed ASN** – A method the WMS uses to remove ASNs once the work with them is finished.
- **Combined Carrier Code** – In the WMS, a unique code representing a specific combination of carrier, service level, and shipper. Sometimes referred to as a combined code.
- **Compartment** - Similar to position, the compartment parameter designates the front-to-back position of material. In the WMS, compartment forms part of the location number.
- **Completed ASN** – Once Supplier Quality determines all audits are completed and the WMS notifies Supplier Quality that the ASN is closed, the status becomes Complete.
- **Consignee** – The individual or company receiving the shipment.
- **Consolidation** – (1) The process of combining orders for a single customer at the time of picking or shipping. It improves efficiency and generates a single shipment, thus reducing freight costs. Orders can be consolidated if they have the same ship-to-customer, order type, carrier, route, and stop. (2) The process of combining material from two or more partially-filled locations into one location, thereby freeing one or more locations for new material.
- **Consolidation** – The collection of smaller shipments bound for the same destination to form a larger quantity in order to realize lower transportation rates.
- **Container** – A generic term used to denote a material-handling unit during picking. Containers include pallets, totes, cartons, and so on. In TMS, a container is also called a ship unit. A container's number in the WMS becomes its ship unit number in TMS.
- **Container Audit** – A post-pick (outbound) process used to inspect containers and verify that the correct material has been picked. The WMS allows you to audit transfer-staged and audit-staged containers, even if they have already been audited.
- **Container Group** – Material designated by container type selection to be picked into a single container. Container groups cannot be split across multiple work assignments unless they are to be picked from zones that allow progressive picking. Because of picking exceptions and container transfers, material in a container group may end up being picked into multiple containers while remaining part of the same container group.
- **Container Group Number** – System-generated number used to identify a container group. Material that was exempt from container type selection will have a container group number of 0.
- **Container Number** – A unique number used to track a container from the time the material is picked until it is shipped. Container numbers are printed on bar-coded labels and are entered (either scanned or typed) during various transactions.
- **Container Reassignment** – The process of changing a container's dock or carrier before shipping.

- **Container Transfer** – An optional RF function that allows all or some of the material in one container to be moved to a new or existing container. If material is transferred to an existing container, both containers must be for the same order or, in the case of consolidated picking, the same ship-to-customer. When all of the contents of one container are transferred to another, the source container is deleted from the WMS.
- **Container Type** – User-defined designation that distinguishes different kinds of containers and defines their dimensions, weight limits, tolerance, availability, and excluded carriers. It is used by container type selection.
- **Container Type Assignment** - A set of rules that identify which container types to use for specific combinations of item, item type, outbound order type, and ship-to customer. It is used by container type selection. If container type selection cannot find a qualifying container type assignment, it refers to the entire pool of eligible container types.
- **Container Type Selection** – The process whereby the WMS chooses the appropriate size and quantity of shipping containers based on the item dimensions and weight, item quantity, container dimensions, container restrictions, container type assignment, and item type mixing rules. It is applied during allocation, order separation, and additional picking opportunities.
- **Containerize** – The process of packaging material into a standard container for shipping. See also container type selection.
- **Conveyor** – Any of a group of devices for the horizontal or inclined movement of material. Conveyors take many forms, have significant capacity and flexibility, and can be built into systems.
- **Country of origin** – Functionality that tracks an item by the country in which it was manufactured or assembled. In order to track the country of origin, both the item and the location class where the item is stored must be license controlled. See also license control.
- **Crossdocking** – The direct movement of material from receiving to shipping, avoiding the putaway and picking processes. There are two types of crossdocking: planner-generated and system-generated. Planner-generated (also known as planned) crossdocking allows an anticipated receipt of an item to be crossdocked to satisfy an outbound order line for an order that has not yet been allocated. If the order number or quantity received does not match the crossdock, the item is put away in a storage location instead of a ship staging location. System-generated (also known as unplanned) crossdocking matches items with an existing pick as they are received. If the pick quantity is greater than the quantity to be crossdocked, the pick will be reduced by the crossdock quantity. If the pick quantity is exactly equal to the receipt quantity, the pick is deleted. The WMS reduces the allocated quantity at the storage location where the pick was to have been made.
- **Customer** – A consumer of the company's product. Customers are generally distinguished from other users of product by the degree of formality involved in the order acceptance and shipping processes.
- **Customer Return** – Product sold and shipped to a customer that is returned for either replacement or reimbursement.
- **Cycle Count** – A physical check of stock to verify that the WMS inventory records match the actual on-hand inventory. Cycle counts are scheduled through the browser and performed via RF. Cycle counts can be generated manually or automatically. Manual cycle counts can be scheduled by location, item, or inbound order number. Automatic cycle counts can be generated periodically by an item's frequency class, when a location is picked empty, or when a pick is shorted.
- **Cycle Count Adjustment Tolerance** – The dollar value used to determine whether a cycle count adjustment will be allowed. When a cycle count uncovers a discrepancy between the count and the inventory records, the WMS compares the tolerance to the dollar value of the discrepancy (discrepant quantity × the item's unit value). If the discrepancy is equal to or less than the tolerance, the inventory is adjusted. If it is greater than the tolerance, a recount is scheduled. One cycle count adjustment tolerance is defined for the warehouse.
- **Cycle Count Recount** – A second cycle count conducted when the original count exceeds the cycle count adjustment tolerance or when an item is counted at a location that was considered empty.

Recounts are always conducted by someone other than the original counter. During a recount, the cycle count adjustment tolerance is not used; the quantity entered during a recount becomes the adjusted quantity and an inventory adjustment transaction is sent to the host system. See also cycle count and cycle count adjustment tolerance.

- **Damaged Storage Strategy** – An optional storage strategy used to store material identified as damaged. Defined on the item's master strategy.
- **Deallocation** – The process of releasing reserved inventory to make it available for another allocation. When material is deallocated, the WMS releases the orders from the wave and deletes the allocated wave.
- **Dedicated Location** – A storage location that remains assigned to a single item even when the location is empty. Compare to non-dedicated location.
- **Demand** – A user-defined parameter used to rank location classes in order to keep the fastest moving items in the most easily accessible locations. Sometimes referred to as ABC Class or Velocity. See also location class.
- **Destage** – An RF process for removing material from a staging location in order to complete the work in process.
- **Destination Area** – A physical area in the warehouse to which material is being moved.
- **Discrepancy** – A difference between the quantity that the WMS user audited and the quantity that was received in the ASN. Also referred to as an Error.
- **Dispatching** – The process in which the WMS presents work tasks to an RF operator. Tasks can be presented by an individual type of work or by differing types of work.
- **Distribution** – A method of moving incoming inventory to outbound customers without storage in the warehouse. Used by retailers for volume buying. Inventory can be diverted to an intermediate customer, such as another warehouse, before being spread to multiple ship-to locations.
- **Distribution Center** – A warehouse with finished goods and/or service items. When a warehouse serves a group of satellite warehouses, it is usually called a regional distribution center.
- **Divert** – The process of altering the path of a carton or other item on a conveyor for purpose of changing its destination.
- **Diverter** – A device capable of altering the path of a carton or other item on a conveyor. Diverters may take the form of swing-arms controlled by air cylinders, but many other designs exist.
- **Dock** – A place to load and unload trailers. Also called "dock door."
- **Empty-Pallet Pickup** – The removal of empty pallets that have been left behind in a location as a result of picking. When a pallet is left behind in a location, the WMS generates a task to pick up the pallet. While an empty-pallet task is pending, the location is placed on hold; storage is not allowed at the location until the pickup is performed. Picking and moves are still allowed if it is a multi-pallet location.
- **Exceptions** – In paper picking, any deviation from the original work assignment, such as quantity, container type, or container number. During the paper picking confirmation process, only exceptions are entered into the system; the WMS assumes all other pick work was completed as assigned.
- **Excluded Items** – an item that an organization wishes to exclude from any ASN audit. These might include items that are high in value or very small in size or cost.
- **Expiration Date** – The date beyond which a lot or unit load of material cannot be used because of its advanced age. Paint, foods, and photographic films are all products that have expiration dates.
- **FIFO** – First In, First Out: A method of inventory management in which the oldest material in the warehouse is distributed first. Sometimes referred to as stock rotation.
- **FIFO Window** – A value on the master strategy used when combining material with different stock rotation dates to determine whether the material can be combined. If the difference between the stock rotation dates equals or is less than this window, the material can be combined; if it exceeds the window, the material cannot be combined.

- **Fill Rate** – The estimated percentage of an outbound order that will be filled. Can be calculated as a ratio of the number of units, number of order lines, or monetary value of the order. It does not take pick strategies into consideration; it is based on four-wall inventory. Displayed on the outbound order tab of the Wave Planning window.
- **Flexible Labeling** – The ability to customize the bar-coded labels generated in the WMS by using a third-party software package. It allows you to customize labels for inbound ASNs, employee badges, loading docks, locations, vehicle locations, licenses, pick labels, and ship labels. See also Loftware™.
- **Forward Location** – A forward location is a location that is relatively close to a yard's dock doors. Forward locations are used as a fast access trailer cache for dock doors.
- **Freight Manifest** – A document that identifies the contents of an outbound shipment. It identifies the name and address of each ship-to-customer or sold-to-customer.
- **Full-Pallet Picking** – The process of picking the quantity of one pallet. Depending on the pallet pick threshold defined on the pick strategy, it could include less-than-pallet quantities. Full-pallet work assignments typically contain only one order. Compare to partial-pallet picking.
- **Gate** – A point of entry or exit for a yard. A yard can have one or more gates.
- **Hazardous Material Manifest** – A document that identifies the hazardous material on an outbound shipment. One line prints for each hazardous item and includes the hazardous material number, class, and shipping name. It can be printed by any combination of carrier, route, ship-to-customer, order or consolidation number, owner ID, or loading dock. It will print only if a shipment has hazardous material.
- **High Demand Pick Strategy** – An optional pick strategy used to pick material when the size of an item in a wave exceeds a predefined size limit, (that is, when the sum of the allocated wave's partial-pallet cube for an item exceeds the high demand pick strategy threshold from the item's master strategy).
- **High Demand Picking Threshold** – The cubic measurement for an item in a wave that the WMS uses to determine whether it should use the pick strategy or the high demand pick strategy. Defined on the master strategy.
- **Hold** – A logical restriction enforced by the system that prohibits activity against a location or product or against any or all of the locations containing a product. There are several kinds of holds.
- **Host Communications** – The process of transmitting data between a host system and the WMS. Host communications are automatically initiated in batch mode using a predefined schedule.
- **Hot Item** – An item that is in high demand. An item is identified as hot by setting a flag and expiration date on its item master. Hot items are visible when you use the Inbound Load and Problem Resolution functions.
- **Inbound ASN** – A notification from a vendor that material has been shipped to your warehouse to partially or completely fulfill one or more inbound orders. ASNs are used to receive material into the warehouse.
- **Inbound Order** – Expected receipts, such as purchase orders, manufacturing receipts, transfer orders, and customer return authorizations. It contains information about the receipt, such as item numbers, quantity ordered, lot, owner ID, and scheduled receipt date. It can be downloaded from a host system or entered in the WMS through the browser. Every inbound order must have an inbound order type.
- **Inbound Order Type** – User-defined code that distinguishes between different kinds of orders and determines how the WMS will handle them. For example, the inbound order type determines how to close the order, whether to allow over-receipts, and whether to require an inspection of all items on the order. Required on inbound orders.
- **Inbound Shipment** – A collection of Inbound ASNs that are scheduled to be delivered to the warehouse at the same time. In most cases, the ASNs will be from one supplier; but if the supplier uses freight consolidation, an inbound shipment may include ASNs from multiple suppliers. An Inbound Shipment is part of a Load within the ODS.
- **Interleaving** – The process of dispatching more than one work type per RF menu option. For example, when an operator selects a menu option, the WMS may assign picking, putaway, or cycle counting

work. There are two kinds of interleaving: revolving and straight. Revolving interleaving dispatches work by alternating work types. Straight interleaving dispatches the highest priority for all the work types supported by the selected option.

- **Inter-Warehouse Transfer** – Product that arrives pre-labeled for another regional distribution center. The material flows through the warehouse without additional handling. Also known as an inter-DC transfer.
- **Inventoried Item** – Something that is inventoried. Items may be known as parts or stock keeping units (SKU's). Each unit of an item is completely interchangeable. An item number is used to uniquely identify an item.
- **Inventory Adjustment** – The process of changing the on-hand quantity at an inventory location. Inventory adjustments may be made as a result of a cycle count, a cycle count recount, or a manual adjustment through the browser.
- **Issue** – A method of removing inventory from a location without an outbound order. Material may be issued to be consumed within the warehouse, to be delivered as product samples, to be sent to a manufacturing assembly operation, or to be scrapped. Issues can be scheduled through either the browser or an RF terminal. They are performed through an RF terminal. Picking strategies are not used; you identify the material to issue, the quantity to pick, and the location to pick from. The destination location is not validated.
- **Item** - Also known as a part, product, SKU, etc. Each item in the WMS is defined on an item master, which identifies the item's size, weight, packaging configurations, item number, and so on. The item number uniquely identifies the item. See also non-product item.
- **Item Elements** – Properties of an item that typically relate to the product's retail use, such as style, color, and size.
- **Item Type Mixing Rules** – A set of item type associations that prevents container type selection from placing the associated item types in the same container. For example, you could set up an item type mixing rule to prevent fragile items from being combined with heavy items.
- **Item/Location** – An inventory record that contains information about a single item at a single location. It is used to track inventory in the warehouse. It is created when an item is putaway into a location or when a location is dedicated to an item. It is deleted when the last unit is removed from the location or when the location is undedicated from the item. You can view the item/location record from the browser. See also item and location.
- **Item/Location Class** – An inventory record that contains information about a single item in a location class. It is used to track inventory in the warehouse. It is created when an item is putaway into a location class or when a location in that class is dedicated to an item. It is deleted when the last unit is removed from the location class or when the last dedicated location in the class is undedicated from the item. You can view the item/location class record from the browser. See also item and location class.
- **Item/Lot/Location** – An inventory record that contains information about the items in a specific lot at a specific location. It is used to track lot-controlled inventory in the warehouse. It is created when a lot-controlled item is putaway into a license-controlled location for the first time. You can view the item/lot/location record from the browser.
- **Label** – A device for identifying an object such as an inventoried item or a storage location. Labels can be paper, metal, plastic, or even cloth. Labels may or may not have adhesive applied to them. Typically, in inventory control systems, labels carry information about the object to be identified (such as its identifying number and a description), with some of the information in bar-coded form and some of it in human-readable form.
- **Last In, First Out (LIFO)** - Method of inventory valuation for accounting purposes. The assumption is made that the most recently received (last in) is the first to be used or sold (first out), but there is no necessary relationship with the actual physical movement of specific items.

- **License** – A unique number used to identify and track a single handling unit of an item, such as a pallet or carton, in the warehouse. Licenses are printed on a bar-coded tag or label that is attached to the handling unit. The WMS supports two label formats:
  - The Catalyst standard label, which contains one to 18 digits prefixed by an M (indicating a single license) or a G (indicating a master license)
  - The UCC128/SSCC18 label Licenses are required whenever material is received into or moved within the warehouse. They are deleted when the material is putaway in a location unless license plate control is maintained, in which case the license number is retained along with the item number and quantity, location, order, ASN, lot, carton quantity, and country of origin. You can view the license information through the browser. Compare to container.
- **License Control** – The ability to track individual handling units of an item, such as a pallet or carton. By using license control, the WMS can distinguish between identical packaging configurations of the same item in a single location. To use license control, both the item and the location must be license controlled.
- **License Join** – The process of combining material from two or more license plates into a single license plate at a single storage location. The licenses must contain the same item and lot and have the same hold codes.
- **Line Item** - One item on an order, regardless of quantity.
- **Live Load** – A load is live if a driver is present and ready to pick up the load.
- **Load** – The contents of a single trailer. A load can include multiple shipments, which can include multiple ASNs, multiple containers and multiple orders for multiple customers.
- **Loading** – The process of placing material on a truck or trailer for shipping. The WMS supports two types of loading.
  - RF loading, allows the operator to validate that a container is being placed on a truck and shipped via the correct dock, carrier, and trailer. An RF loading work assignment is created when a container has been authorized for loading.
  - Non-RF loading, allows no validation that a container was placed on a truck or shipped via the correct dock, carrier, or trailer. No loading work assignments are created; once the container has been authorized for loading, it is considered loaded on the trailer.
- **Loading Authorization** – The process of identifying containers that are ready to be placed on a trailer for shipping. Catalyst supports two methods of loading authorization:
  - Manual, allows you, through the browser, to specify which containers to authorize and when.
  - Automatic, authorizes all containers that have been ship staged. If you use RF loading, the loading work assignments are created for the authorized containers but are not made available until the trailer has been opened. If you are not using RF loading, the WMS considers the containers loaded as soon as they are authorized. If the Ship Stage Complete flag is set on the order, containers will not be authorized, manually or automatically, until all the picks for the order are complete and all containers have been ship staged.
- **Location** – A physical place where inventory can exist. A location is associated with a location class which determines the location's warehouse zone, storage device, and storage function. A location's width, depth, height, and weight limit may default from its storage device but can be entered manually. The WMS supports five location types: storage, transfer staging, order assembly, ship staging, and problem resolution. Locations are identified by a location number and may be validated during RF transaction by entering either the location number or a location code. See also location class, location code, location number, storage device, storage function, and zone.
- **Location Class** – A group of locations that have the same warehouse zone, storage device, storage function, demand, dedication type, and license plate control. You store, replenish, and, optionally, pick material at the location class level. See also dedicated location, demand, license control, location, storage device, storage function, and zone.

- **Location Code** – An optional two-character, alphanumeric code that can be used in place of a location number to validate locations during RF transactions. It is typically used for locations that are difficult to label. See also location and location number.
- **Location Number** – A 12-character, alphanumeric code that uniquely identifies a single location. It consists of six 2-character subfields that correspond to area, aisle, section, tier, position, and compartment. It can also be used to validate the location during RF transactions. 6
- **Lot** – A group of items that were manufactured in a single run or received from a vendor in a single shipment. The WMS uses a lot record to retain information about the lot, such as a unique lot number, a consumer expiration date, a receipt date, an incubation release date, a last receipt date, a manufacture date, and a warehouse expiration date. The WMS uses the dates to determine incubation and expiration holds for the lot. To be eligible for lot tracking, the item must be flagged for lot control and the location class in which the lot is stored must be flagged for license control. If a lot is placed in a location class that is not flagged for license control, the lot information will not be tracked when the material is moved from the location; the operator will be prompted to enter the lot number.
- **Manifest** – A document that lists the pieces in a shipment. A manifest usually covers an entire load regardless of whether the load is to be delivered to a single destination or many. Manifests usually list the piece count, total weight, and the destination name and address for each destination in the load. See also hazardous material manifest.
- **Master Bill of Lading** – This document is assigned by the delivering carrier to identify all contents on a load. If the shipment represents multiple orders, individual bills of lading for each order may be listed on the Master Bill of Lading. If there is only one order on the load, the Master Bill of Lading is the only Bill of Lading for that load. See also Bill of Lading.
- **Master Container** – A material handling unit containing multiple containers. Used during ship staging to link different containers to a single container number to simplify the containers' movement through the loading and shipping process. The containers are disassociated with the master container when the shipment is closed. See also container, container number, and container transfer.
- **Master License** – A material handling unit containing multiple single licenses. Used during receipt, moves, and putaway to link different single licenses to one license number to simplify the licenses' movement through the warehouse. The licenses are disassociated from the master license when the putaway or move is complete. See also license, license joining, and license control.
- **Master Location Class** – An optional record associated with a master strategy that contains the default values that the WMS will use when it generates item/location classes for items associated with the master strategy. You should set up one master location class for each location class associated with the master strategy through the pick, storage, and replenishment strategies.
- **Master Strategy** – The method the WMS uses to define a variety of item properties, including storage strategies, pick strategies, replenishment strategy, item mixing, receipt holds, crossdocking, FIFO window, stock rotation date, vehicle class, and master location classes. Master strategies are assigned to items that share common handling characteristics, such as size, shape, weight, velocity, and so on. See also crossdocking, FIFO window, location class, pick strategy, replenishment strategy, storage strategy, and vehicles.
- **Material Handling Group** – A collection of warehouse zones and pick work function codes used by allocation for the generation of work assignments for material handling equipment and paper picking.
- **Maximum Capacity** – The maximum number of units of a single item that can be stored in a single item/location or item/location class. The WMS calculates the maximum capacity and uses it in storage fit tests and to calculate the replenishment points for an item/location class.
- **Minimum Acceptable Item Life** – Minimum acceptable item life is a feature that allows you to specify the minimum acceptable product life that should remain for an item when it arrives at a ship-to customer's site. In other words, Minimum Acceptable Item Life is the fewest number of days an item must last once it arrives at customer's facility.

- **Move** – The relocation of an item from one location to another, typically to consolidate product, to isolate damaged product, to place material in a more desirable location, or to empty a location for maintenance. Moves are scheduled manually through either the browser or an RF terminal.
- **Multiple Simultaneous Replenishment** – The process of replenishing several locations in the same location class from a single source location when the replenishment quantities are less than a pallet.
- **Nested Item** – Oddly shaped items that can be stacked on top of or inside of one another. Items can be nested vertically and horizontally; consequently, their dimensions can grow in height, width, and length. For example, stacking chairs grow in height and width but not in length.
- **Non-Dedicated Location** – Locations that are not permanently assigned to an item and are therefore eligible for reassignment to another product when they become empty. Compare to dedicated location.
- **Non-Product item** – Material without an item master that is received into the warehouse against an inbound order whose inbound order type allows the receipt of non-product items. When a non-product is received, the WMS generates an item master using the values from the default item master ///GENERATED ITEM///. The WMS tracks the non-product while inventory exists but deletes the item master a user-defined number of days after the inventory has been depleted. Often used for one-time or seasonal material, such as sales promotional items or advertised material. When a non-product item is received, users should update the item dimensions and assign a master strategy before storing the material.
- **On-hand quantity** – The number of units physically at a location. Compare to available quantity.
- **Open crossdock** – A planned crossdock in which the outbound order line is not associated with a specific inbound schedule release line. With an open crossdock, any inbound receipt or receipt without order that matches the outbound order line criteria can be crossdocked to the outbound order line.
- **Operational Data Store (ODS)** – A mandatory suite level component that manages process and data communications between various remote systems, such as the WMS, and other enterprise level components such as Cross Dock Planning, Supplier Quality and Supplier Link. It facilitates, coordinates and optimizes the information and product flow in the extended supply chain network. It also manages master and operational data that is common between applications, such as suppliers, shifts, etc.
- **Operator-Directed Work** – An RF work category, such as receiving or putaway, which allows the operator to choose a specific work assignment or task. The dispatching function determines whether a work category allows operator-directed work. Compare to system-directed work and system-recommended work.
- **Order Assembly** – An optional post-picking process used to direct all the containers for an order into an order assembly location so they can be combined for shipment. None of the containers for the order can move to the next process until all the containers for the order are in an order assembly location.
- **Order Assembly Location** – A temporary location used for order assembly.
- **Order Close** – The process of identifying an order, or portions of an order, as complete. You can close an order manually or automatically. The outbound order close function is the last step in outbound order processing. The WMS does the following when an order is closed:
  - Sends an Order Close upload to the host
  - Changes the order's status from status 10 (Completed) to status 8 (Purgeable)
  - Builds backorders as required as an outbound order can be partially or fully order closed.
- **Order Picking** – The process of picking material for a single order at a time. When order picking is used, the work assignment will contain picks for only one order or consolidated orders, and several work assignments may be generated for the same order. See also consolidation (definition 1), progressive picking, and work assignment.
- **Order Separation** – The process of separating bulk-picked material into individual containers.
- **Order Separation Location** – A transfer staging location used for order separation.

- **Order Type** – An attribute of an order. It defines how the system handles the order by specifying a group of switch and parameter settings. Order type may also be used to separate customer orders, shop orders, scrap orders, transfer orders, and other kinds of orders from each other.
- **Outbound ASN** – A document that informs your customer that you have shipped material from your warehouse. It identifies the material that was shipped, the orders the material fulfills, and the vendor that shipped the material (your warehouse). It also identifies the packs (containers) in which the material was shipped, the tares (pallets) on which the packs are located, and any serial numbers associated with the material. At least one ASN is generated for each customer on an outbound trailer. An ASN may contain information for one or more of a customer's outbound orders. Shipment close is a required process, and outbound ASNs are always produced as a result of shipment close.
- **Outbound Order** – A request to ship product from the warehouse. Typical outbound orders include customer orders, transfer orders, manufacturing work orders, and return to vendor orders. Outbound orders identify the item and quantity ordered, lot, owner ID, carrier, and customer information. Every outbound order must have an outbound order type. Outbound orders can be downloaded from the host system or entered manually through the browser.
- **Outbound Order Type** – User-defined code that distinguishes between different kinds of orders and determines how the WMS will handle them. For example, the outbound order type determines whether to allow backorders or unlimited picking. Required on outbound orders.
- **Outbound Shipment** – An outbound shipment identifies a collection of containers that are being shipped from the warehouse at the same time. Outbound shipments inform the WMS of the following:
  - How the material you are going to ship is grouped
  - What carrier is transporting the material

  One shipment is created for each carrier/trailer combination found within the selected containers. An outbound shipment can cover all or a portion of the contents of a single, departing trailer. Typically, one outbound shipment will be created for each trailer that is leaving the warehouse.
- **Outbound Shipment Close** – The process of finalizing an outbound shipment. Clicking Ship on the Shipment Close Selection Results page closes an outbound shipment. When the WMS initiates the shipment close process, it generates one outbound shipment record and one or more ASN records for the selected containers.
- **Overage** – An instance in which more product is available than needed to meet a requirement. The opposite is a shortage.
- **Pack** – The physical container in which material is shipped to or from the warehouse. The term is used in reference to advanced shipment notices (ASNs).
- **Pack Station** – Centralized transfer-staging location where material handlers can do the following:
  - Run RF container type selection
  - Perform RF container transfers
  - View order progress for a particular container
  - Consolidate and pack material for an order into the proper shipping containers
- **Pack Structure** – The order—or structure—in which information is presented when transferring advanced shipment notices (ASNs) to or from the host system to the WMS. The WMS supports three pack structures:
  - Pack Structure 1: Pick and Pack
  - Pack Structure 2: Standard Carton Pack
  - Pack Structure 4: No Pack Level Information
- **Packaging Configuration** – The arrangement of cartons in a packaging level based on the carton quantity. An item can have more than one carton quantity, and each carton quantity has its own settings per pallet, layer, and inner pack. For example, soft drinks may come in two packaging configurations: a carton of 12 cans and a carton of 24 cans. When you receive a shipment of 24 cans,

that shipment may be either two 12-can cartons or one 24-can carton. You can predefine multiple packaging configurations, or you can enter new configurations during receiving.

- **Packaging Level** – A set quantity of an item treated as a single entity for purposes of picking, moving, replenishment, and so on. The WMS supports five packaging levels: pallet, layer, carton, inner pack, and each (or unit). Items may have multiple instances of a supported level. For example, soda may have a carton of 12 eaches and a carton of 24 eaches. Also known as handling unit or material handling unit.
- **Packing List** – A document used to identify the contents of a shipment. It includes the order number, the ship-to-customer name and address, the warehouse and address the material was shipped from, the item number and description, the lot, the quantity shipped, any substitute items included in the shipment, and the container number if printed by container. It can be printed using any combination of carrier, route, ship-to-customer, order number, trailer ID, owner ID, or loading dock.
- **Paper Picking** – Paper-based process for picking material to fulfill outbound orders. It supplements RF picking where RF picking is considered too expensive, cumbersome, or a deterrent to high pick rates. It uses a pick list and/or a pick label and ship label to direct the picking process.
- **Paper Picking Confirmation** – The process of notifying the WMS that a paper pick has been completed so inventory quantities can be updated accordingly. During the confirmation, only exceptions to the original work assignment are noted; the WMS assumes that all other pick work was completed as assigned.
- **Parent Container** – A container or a pallet. A child/single container can be associated with one or more parent containers. A parent container can have one or more child containers.
- **Partial-Pallet Picking** - The process of picking material in a quantity that is less than a full pallet. Compare to full-pallet picking.
- **Physical Inventory** - The process of completely recounting the inventory in a facility or in a major portion of a facility. All movement is usually halted during the counting process. Most physical inventory counts are accompanied by an audit conducted by professional auditors.
- **Pick Label** – An item label that may be printed for each pick transaction. Used to identify the product for the customer and as an aid to picking. The pick label will be printed during allocation.
- **Pick list** – A document that tells the picker what to pick for an order. The pick list shows the picking location, the item to be picked, and the quantity to be picked. Pick lists are arranged in an efficient picking sequence to minimize the time the picker spends moving from one location to the next. Used with paper picking.
- **Pick On Receipt** – A method for processing crossdocks in which crossdock opportunities are automatically generated during the receiving process. If pick on receipt is not enabled, crossdock opportunities are usually created before product is received.
- **Pick Strategy** – A series of sequential rules that define the criteria for picking product. It identifies the locations from which to pick the product, the order in which the locations are to be considered, and the vehicle to use during the pick, the packaging level to pick,. Pick strategies are entered on both the master strategy and the replenishment strategy. You can create distinct strategies for normal picking, high demand picking, alternate and held goods picking. See also alternate master strategy, held goods pick strategy, high demand pick strategy, master strategy, partial-pallet picking, and replenishment strategy.
- **Pick Task/Transaction** – A directive to pick a quantity of one item at one location. It will specify a packaging level and will not exceed a full pallet quantity.
- **Pick Work Assignment** – A group of similar pick tasks to be performed by a single employee. Pick tasks are considered similar if they have the same work function, vehicle class, work type, zone, and work assignment limits. The work assignment limits are user-configured on the warehouse zone and system control.
- **Picking** – The process of removing inventory from a location to fill an order, replenish a location, or fulfill an issue.

- **Picking Wave** – A group of pick work assignments.
- **Pooled Picking** – The process of deferring partial-pallet, batch picks to create larger, more efficient picking waves to ensure that pickers travel through each aisle less frequently. The criteria for selecting pooled pick work assignments are similar to the criteria used in order selection.
- **Position** – In a single rack or bin structure, at a specific level above ground there may be space for storage of more than one item, pallet, or load. These spaces are separated by considering them to be different positions and giving them numbers. In the WMS, position forms part of the location number.
- **Post-Pick Process** – An optional user-defined process that follows picking. Typically used to initiate value-added processing, such as monogramming, it can include both generic processes and pre-defined processes such as additional picking, kit assembly, order assembly, or ship staging. You can run post-pick processes by criteria such as item type, item, customer type, customer, carrier type, carrier, order type, and order, although allowed criteria are limited for some master process types.
- **Priority** – The relative importance of jobs or tasks. Used to assure that the most important work is done before other work is assigned. In the WMS, lower priority numbers indicate higher importance.
- **Purchase Order (PO)** – is a request for material from a supplier and against which receipt from a supplier will be posted. Will be mapped to an inbound order type within the Warehouse Management System.
- **Putaway** - An RF-based process that directs the movement of received items into storage locations.
- **Planned Crossdock** – A crossdock that has been scheduled but not yet performed. Planned crossdocks must be executed in the CDC Supply Chain WMS.
- **Pro Number** – An identifier (usually numeric) that identifies a single freight bill as unique from all other freight bills. Freight bills are made up by the carrier, so Pro numbers are assigned by the carrier. The term “pro” dates from the days of hand written documents. Invoice clerks were required to assign each document a “progressive number”. The Pro date is simply the date on which the invoice was written by the carrier.
- **Problem Resolution** – (1) Temporary storage location used when a valid storage location could not be found or was not available during putaway. The WMS will select the problem resolution location if it cannot find a valid storage location. The operator can override to the problem resolution location if he or she discovers a problem with the product or with the location the WMS selected, such as water damage. (2) A function used to resolve the problems that placed material in a problem resolution location and to assign the material to a new storage location.
- **Product Life** – The time span in calendar days between product manufacture date and consumer expiration date. See also minimum acceptable item life.
- **Progressive Picking** – A variant of order picking, it is the process of picking into a container for an order and passing the container from zone to zone to fulfill the order picks.
- **Proration** - In Crossdock Planning, the way incoming product is divided and distributed among multiple outgoing orders. Multiple methods of proration are available. The WMS supports both progressive order and progressive batch picking.
- **Radio Frequency (RF)** – hand held or vehicle mounted unit able to scan bar coded labels enter data communicating with the WMS by wireless transmissions.
- **RF Label Picking** – A pick method also known as ‘label slapping’ or ‘pick and stick.’ This type of picking is typically utilized in high velocity areas of the warehouse because it offers the least amount of scans per picking work assignment. This method is also frequently used when a conveyor belt moves the product to its next destination after the pick.
- **Receive-Only Item** – Product that is received into the WMS but not putaway or tracked. It is enabled by setting a flag on both CDC system control and the item master. Often used for material consumed in the warehouse, such as office and cleaning supplies. See also item and non-product item.
- **Receiving** – The act of accepting the delivery of arriving materials and preparing them for putaway. Receiving verifies that the materials were ordered and that they have not been shipped too far ahead of

schedule. It identifies and counts the material and causes it to be added to the company's inventory. Finally, receiving is responsible for preparing the material for putaway by repalletizing or repackaging it as necessary.

- **Replenishment** – The internal movement of stock from one storage location (source) to another (destination), usually for the purposes of restocking picking locations. The WMS supports three replenishment methods:
  - **Scheduled** – User-initiated replenishment by zone or item for all locations whose available quantity is less than a predefined minimum quantity.
  - **Allocation-Driven** – WMS-initiated replenishment during allocation for locations whose available quantity is less than the order quantity.
  - **Real-Time** – WMS-initiated replenishment during picking for locations whose remaining on-hand quantity falls below a predefined minimum quantity.
- **Replenishment Percent** – The percentage of an item/location class's maximum capacity at which the item/location class should be replenished. Used to calculate the item/location class's replenishment points. The WMS provides two replenishment percents—a regular replenishment percent and a priority replenishment percent—which are defined manually on the master strategy. See also master strategy, replenishment, and replenishment points.
- **Replenishment Points** – The quantity at which an item/location class should be replenished. The item/location class contains two replenishment points: a regular replenishment point and a priority replenishment point. The WMS calculates the replenishment points by multiplying the item/ location class's replenishment percents by its maximum capacity.
- **Replenishment Strategy** – A series of sequential rules that define the criteria for replenishing locations. It identifies the destination location class, the pick strategy to use, the packaging level to replenish, and the sequence in which replenishments occur. Replenishment strategies are associated with items through the master strategy. Each master strategy can have only one replenishment strategy. See also master strategy, pick strategy, and replenishment.
- **Return to Stock** – This is the process of placing picked material back into warehouse inventory by order or order line. It is used when damaged material is picked, when an order or order line is cancelled, and for problem orders. You can return either all the material or part of the material. Material is manually scheduled for return to stock through the browser, processed with an RF terminal, and restocked as receipts without orders.
- **Rewarehousing** – The reorganization and physical relocation of stock to optimize the best storage locations and better reflect current strategies. You may choose to rewarehouse product that is in the wrong location class or mixed incorrectly.
- **Route** – The list of customers (or stops) to which a driver makes deliveries in a single run. The term is usually limited to delivery runs that involve more than one customer. Routes may be regular (in which case it does not change frequently) or dynamic (in which case it changes with every run).
- **SCAC** – Standard Carrier Alpha Code. A unique identifier for transportation companies assigned by the National Motor Freight Traffic Association.
- **S-Pattern Picking** – Also known as serpentine picking, it is method of pick routing in which the WMS sorts the picks in a work assignment to alternate picking down one aisle and up the next. Used to reduce travel time.
- **Secondary Receiving** – An area within the warehouse used to RF receive product intended for storage. See also receiving.
- **Section** – In an inventory facility, a single rack or bin structure on one side of an aisle. Sections are either numbered within an aisle (even numbers on one side, odd on the other) or within a row. In the WMS, section forms part of the location number.
- **Select Method** – A set of saved selection criteria used in the order selection process.

- **Serial Number** – An identifier that is unique to a single piece and will never be repeated for that item. Serial numbers are usually applied by the manufacturer, but can be applied at other points including the distributor or wholesaler.
- **Serial Number Control** – The process of capturing serial numbers during inbound and outbound processing. Enabled through a flag on the item master.
- **Service Level** – Carrier-defined shipping option that indicates how and when a package is to be delivered. Examples include next day air, overnight express, and ground.
- **Shelf Life** – The amount of time an item may be held in inventory before it becomes unusable.
- **Shift** – A shift is a scheduled period of work for a group of employees. Shifts are organized into shift groups.
- **Shift Group** – A shift group is a collection of shifts. You can organize shifts into different shift groups, based on the function of the shifts. For example, overtime shifts may be organized into a "Seasonal" shift group; evening shifts might be organized into a "4th Shift" group.
- **Ship Complete** – The process of shipping an order or order line only after all the picks have been completed. If an order or order line that is flagged to ship complete has not been completely allocated or picked, you cannot ship it without user intervention. When an order or order line is flagged to ship complete, it must also be ship staged complete. See also ship stage complete.
- **Ship Label** – A label used to identify containers for shipping. It contains the ship-to-customer name and address and the name and address of the warehouse the containers are being shipped from. Ship labels print only if the Print Ship Labels field is set for the warehouse zone from which the shipment originated. They can be printed from either the browser's Print Shipping Document function or an RF terminal. If printed from the browser, the number of labels printed equals the number of containers staged for each order or consolidation order in a wave. If printed from an RF terminal, the operator specifies the number of labels to print.
- **Ship scan** – Ship scanning is the process by which material handlers load cartons, totes, or pallets onto a trailer. It indicates to the WMS that the material has been loaded onto the trailer.
- **Ship Stage Complete** – The process of authorizing the loading of an order only after all the containers for the order have been ship staged. Defined on the outbound order, it is intended to ensure that the complete order is picked and staged before loading the trailer. It may be used when the driver is loading the trailer or when there is a limited time period in which the trailer must be loaded to avoid additional freight charges.
- **Ship Staging** – The required process of placing containers into a ship staging location to await loading authorization. See also loading authorization and ship staging location.
- **Ship Staging Location** – A required location where containers must be staged after picking and prior to loading authorization.
- **Ship Units** – Packs (containers) in which material was shipped and tares (pallets) on which the packs are located. Also, a pallet or container of product included on a shipment or advanced shipment notification (ASN).
- **Shortage** – An instance in which product is not available to meet a requirement. Shortages can occur at the time an inventory allocation is attempted or at the time a picker attempts to pick the material. The latter case, known as an unplanned shortage, implies that inventory records are in error.
- **Single Container** – A container that can only be assigned to one parent container or pallet.
- **SKU** – Stock Keeping Unit. A number that uniquely identifies an item.
- **Source Area** – The area from which material or a task originated.
- **Staging** – The process of placing material at a special location either in the middle of a transaction so that the transaction can be completed at a later time, possibly by another operator, or at the end of one transaction in preparation for the next. See also destage, order assembly, order separation, ship staging, and transfer staging.

- **Status Codes –** Orders, Work Assignments and Containers will have a status within the WMS depending upon where it's overall processing:
    - 0 – Available
    - 2 – Not Available
    - 3 – Change Request Pending
    - 4 – Shippable
    - 6 – Closed
    - 8 – Purgeable
    - 10 – Complete
    - 11 – In Picking
    - 14 – In Process
    - 16 – Staged
    - 18 – Not Staged
    - 22 – Allocated
    - 28 – At Receiving Dock
    - 32 – Not Resolved
    - 42 – Ready to Count Cycle Count Transactions via RF
    - 44 – Ship Closed
    - 60 – Update Pending
    - 65 – Inactive Slot Move
    - 66 – Active Slot Move
    - 77 – Progressive Pick
    - 80 – Authorized to Load
    - 85 – Loaded
    - 87 – Reassignable
    - 89 – Selecting Cycle Count Candidates
    - 90 – Inserting Cycle Count Candidates
    - 91 – Unpicked
- **Stop Sequencing** – The organized loading of a trailer that will be unloaded at multiple stops. Product to be unloaded at the last stop should be loaded first; product to be unloaded at the next-to-last stop should be loaded second, and so on. Product to be unloaded at the first stop should be loaded last.
- **Storage Device** – The physical unit used to store material at a location. Typical storage devices include shelves, bins, racks, floor storage, and so on. Storage devices have the following characteristics: dimensions, tolerances, weight limits, standard pallet thickness, validation method, cube calculation method, and pallet storage type. It may optionally define a storage fit test used to determine whether material can fit in the device. Locations are associated with storage devices through the location class and inherit the characteristics of the storage device.
- **Storage Device** – The physical unit used to store material in a location. Typical storage devices include shelves, bins, racks, floor storage, and so on.
- **Storage Fit Tests** – An optional set of 22 calculations that the WMS uses to determine whether material will fit in a storage device. While they are optional, CDC recommends that you associate at least one fit test with each storage device.
- **Storage Function** – User-defined codes used to group locations according to their purpose, such as forward picking, progressive picking, pallet reserves, and so on. They are associated with locations through the location class. CDC provides four reserved storage functions: order assembly, problem resolution, transfer staging, and ship staging. You must define at least one storage function for storage, but you can define as many other storage functions as necessary.
- **Storage Strategy** – A series of sequential rules that define the criteria for storing material in the warehouse. It identifies the location classes in which to store the material; the receiving point for which each location class is to be used; the packaging configuration for which each rule applies; whether the material must be stored in an empty location, a location that already contains the same item, or a location with other items; and so on. Storage strategies are associated with items through the master strategy.

- **Substitution** – (1) An item shipped to a customer in place of the item ordered. Substitutions usually occur because the item ordered is out of stock. (2) The process in which an item is shipped in place of another because the item ordered is out of stock or obsolete.
- **Suggested Crossdock** – A suggestion for a potential crossdock generated by Crossdock Planning that cannot be acted upon until it is reviewed and approved. In Crossdock Planning, you can request crossdocks from either of two planning screens or from a crossdock pool release screen. Crossdocks generated from these screens are suggested crossdocks. They must be approved by a user to be considered planned crossdocks.
- **Supplier** – A supplier ships product or material to a warehouse. A supplier may be external (a third-party company) or internal (a separate division of a manufacturing plant).
- **System Control** – User-defined, global parameters that are determined prior to installation and control numerous functions throughout the WMS, including inbound features, company name and address, outbound features, and post picking features.
- **System-Directed Work** – An RF work category, such as picking and replenishment, in which the WMS determines which tasks to dispatch based on work assignment. The dispatching function determines whether a work category system-directed. Compare to operator-directed work and system-recommended work.
- **System-Recommended Work** – An RF work category, such as destaging, in which the operator can either perform the work the WMS suggests or choose other work in the queue. Compare to operator-directed work and system-directed work.
- **Tare Weight** – The weight of an empty container.
- **Tier** – In a single rack or bin structure, the level above ground of the pallet beam, shelf, bin, or drawer. Tiers are usually numbered beginning with 1 at ground level and going up. In the WMS, tier forms part of the location number.
- **Tote** – A container, usually of 5 cubic feet or less. Totes may or may not have covers. They are usually arranged to allow stacking without damaging the product and can also nest for storage when empty.
- **Trailer** – A trailer is a vehicle, typically designed to be hauled by a truck or tractor, used to transport material and product.
- **Trailer Close** – An RF function used to indicate that a shipment has been loaded and is ready to be closed. Required if RF loading is used.
- **Trailer Open** – An RF function used to indicate that a trailer is ready for loading. When a trailer is opened, RF loading work scheduled for that trailer is made available for someone to perform. Required if RF loading is used.
- **Transfer Staging** – An optional process of placing material in a special location during the middle of a transaction so the transaction can be completed at a later time, possibly by another operator. Material may be transfer staged at receiving, before putaway, after picking, or while moving material from one location to another. See also destage, order assembly, order separation, ship staging, staging, and transfer staging location.
- **Transfer Staging Location** – A location used to temporarily place product when moving through the warehouse.
- **Travel Distance** – Time required for a worker to move between areas of a warehouse. For example, from zone to zone.
- **Unit** – One inventoried piece. Units are identified by a part or item number. All units of a part are completely interchangeable.
- **Unzoned** – Work that is not restricted to a single zone and may cross multiple zones. Unzoned work includes issues, destaging, moves, and, optionally, picking.
- **Validation** – The process of confirming that the various activities of the warehouse or stockroom are performed correctly and accurately. Validation usually involves the collection of independent confirming data for each activity and a method of displaying errors and obtaining corrections.

- **Vehicles** – A device or method for transporting material through the warehouse during picks, replenishments, and moves. Vehicles are grouped together in vehicle classes, which may include forklifts, hand carts and people on foot. Vehicle class is used as one criterion for building work assignments; a work assignment will include only tasks that use the same vehicle class. Vehicle classes are associated with work through the master strategy and pick strategy. See also master strategy and pick strategy.
- **Vendor** – A vendor is a supplier who ships product or material to a warehouse. A vendor may be external (a third-party company) or internal (a separate division of a manufacturing plant).
- **VICS** – The Voluntary Inter-industry Commerce Standards that determine the format and the data content of the Catalyst BOL.
- **Voided Label** – An ASN label that a WMS user has marked as voided so not audit results will be reported.
- **Warehouse** – A place for receiving, storing, and shipping goods. In most CDC Supply Chain Suite applications, a warehouse number also identifies the "remote system" that interacts with the CDC Supply Chain Suite software.
- **Wave** – A group of orders chosen to be released together for picking and shipment. Waves may consist of orders selected for a single carrier or a group of carriers, for specific types of picking, or for certain types of customers. Other wave selection criteria also exist based on a particular facility's physical layout and organization.
- **Wave Authorization** – The final stage of outbound order allocation that either finalizes the allocation and creates picking work assignments or deallocates the wave and releases the reserved.
- **Wave Finalization** – The process of creating pick work assignments.
- **Wave Merging** – The process of combining two waves into a single wave.
- **Wave Planning** – The process of selecting and grouping outbound orders into an allocation wave. You can select orders by manually entering criteria or using a select method.
- **Work Area** – A user-defined subdivision of a warehouse. For example, you may define your zones as separate work areas.
- **Work Assignment** – A group of one or more related tasks to be performed by a single individual, such as picking or putaway. To be related, the tasks must have the same work function, warehouse zone, and vehicle class. All work is divided into work assignments.
- **Work Function Code** – Different activities within the WMS are assigned different work function codes to allow them to be managed independently. Codes used are:
  - 10 – Receive With Order, No Putaway
  - 11 – Receive Without Order, No Putaway
  - 12 – Receive With Order and Put Away
  - 13 – Receive Without Order and Put Away
  - 14 – Receive ASN, No Putaway
  - 15 – Receive ASN and Put Away
  - 20 – Putaway
  - 30 – RF Loading
  - 40 – Issues
  - 41 – Schedule Issues
  - 45 – Void Label
  - 50 – Logoff
  - 60 – High Priority Full Pallet Replenishment
  - 61 – Emergency Full Pallet Replenishment
  - 62 – Low Priority Full Pallet Replenishment
  - 63 – Regular Full Pallet Replenishment
  - 64 – High Priority Partial Pallet Replenishment
  - 65 – Emergency Partial Pallet Replenishment

- 66 – Low Priority Partial Pallet Replenishment
- 67 – Regular Partial Pallet Replenishment
- 70 – Destaging
- 80 – Full Pallet Move
- 81 – Partial Pallet Move
- 82 – Schedule Move
- 83 – User Directed Moves
- 84 – Full Pallet Slot Move
- 85 – Partial Pallet Slot Move
- 88 – License Join
- 90 – Cycle Count
- 91 – Recount Cycle Count
- 100 – Full Pallet Zoned Pick
- 101 – Full Pallet Unzoned Pick
- 105 – Full Pallet Zoned Bulk Pick
- 106 – Full Pallet Unzoned Bulk Pick
- 110 – Partial Pallet Zoned Order Pick (Unbatched)
- 111 – Partial Pallet Unzoned Order Pick (Unbatched)
- 115 – Partial Pallet Zoned Bulk Pick
- 116 – Partial Pallet Unzoned Bulk Pick
- 120 – Partial Pallet Zoned Batch Pick
- 121 – Partial Pallet Unzoned Batch Pick
- 130 – Empty Pallet Pickup
- 140 – Release Hold
- 160 – Shipment
- 167 – RF Label Picking
- 181 – RF Vendor Audit
- 182 – RF Cancel Audit
- 200 – Inventory Adjustment
- 201 – Putaway Adjustment
- 210 – Problem Resolution
- 220 – Picking Time Standard
- 230 – Assembly Time Standard
- 240 – Repl Time Standards
- 245 – Receive Inbound Order
- 250 – Put Away Inbound Order
- 300 – Consignment Buyover
- 310 – Move Damaged Goods
- 320 – License Contents
- 321 – Location Contents
- 330 – Set Hold Code
- 331 – Release Hold Code
- 340 – Container Transfers
- 350 – Planned Crossdock
- 351 – Pick Replace Crossdock
- 360 – Unload
- 361 – Process Trailer
- 362 – Return to Stock
- 370 – Operator-Directed Post Pick Processing
- 371 – Container Audit
- 380 – Print Shipping Documents
- 390 – Order Separation
- 400 – Link-Unlink

  - 404 – RF Hazmat List
  - 418 – Container Selection
  - 420 – Vendor Event Entry
  - 421 – Print Price Ticket Labels
  - 422 – Non System Work Menu
  - 423 – Employee Productivity
  - 424 – RF Capture Serial Number
  - 425 – RF Kit Assembly
  - 426 – RF Custom Item Process
  - 427 – RF Build Master Container
  - 999 – Initial Inventory
- **Yard** – An area, usually adjacent to a warehouse, in which trailer movement is managed. Yards contain dock doors, trailers, forward locations, and yard locations.
- **Yard Location** – A yard location is a small named area of a yard. Yard locations are mutually exclusive; that is, they may not contain parts of other yard locations. Yard locations have room for one or more loads; the number of loads that can fit is stored on the YTM location entity. Dock doors are not locations. A location is contained in at most one yard zone.
- **Yard Work Zones** – Also known as yard zones, work zones, or zones. Yard work zones are logical groups of yard locations and dock doors that determine work distribution.
- **Zone** – a subdivision of a warehouse or stockroom. Zone defines the work assignment boundaries, work assignment size, pick pattern, pick sequence, replenishment method, cycle count parameters, multiple pallet movement, location validation and location override
- **Zone Group** – a grouping of zones to allow pick sorting across a larger portion of the warehouse. For example, a zone group can be created for all reserve zones, and pick strategy details can be set up to pick FIFO across the entire zone group.